WORCESTER REGIONAL CONTRIBUTORY RETIREMENT SYSTEM

Actuarial Valuation Report

January 1, 2007

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Report Summary:

Highlights	**January 1, 2004**	**January 1, 2007**
Contributions		
Funding Schedule FY 2008	$22,920,885	$22,920,884
Funding Schedule FY 2009	23,950,211	26,400,000
Funded Ratios		
GAS No. 25	63.5%	56.3%
Participants		
Actives	5,990	6,610
Retirees and Beneficiaries	2,699	2,686
Vested	0	0
Inactives	1,352	2,155
Disabled	186	201
Total	10,227	11,652
Payroll		
Payroll of Active Members	$170,669,442	$211,518,755
Average Payroll	28,492	32,000
Normal Cost		
Employer	5,225,762	7,234,638
Employee	13,867,707	17,463,691
Administrative Expenses	0	0
Total	19,093,469	24,698,329
Actuarial Accrued Liabilities		
Actives	262,256,633	353,391,564
Retirees, Beneficiaries, Disabilities and Inactives	284,442,371	339,376,761
Total	552,773,550	692,768,325
Actuarial Value of Assets	350,879,900	389,758,785
Unfunded Actuarial Accrued Liabilities	$201,893,650	$303,009,540

Introduction

This report presents the findings of an actuarial valuation as of January 1, 2007, of Worcester Regional Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2007.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Worcester Regional Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2007.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

Since 2004, the total unfunded actuarial accrued liability increased by 50.08% to $303,009,540. The increase is the result of net unfavorable actuarial experience. The sources of the (gain)/loss are estimated as follows:

Investment	(49,500,000)
Salary Increases	(12,000,000)
New Participants	(16,000,000)
Active - Terminations	(1,000,000)
Active - Disabilities	(2,000,000)
Inactive Mortality	(5,000,000)
Other	(3,100,000)
Total	(88,600,000)

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	January 1, 2004	January 1, 2007
Superannuation	12,609,455	$16,364,316
Termination	3,150,070	3,858,610
Death	1,199,473	1,490,812
Disability	2,134,471	2,984,591
Administrative Expenses	0	0
Total Normal Cost	19,093,469	24,698,329
% of Pay	11.2%	11.7%
Employee Contributions	13,867,707	17,463,691
% of Pay	8.1%	8.3%
Employer Normal Cost	$5,225,762	$7,234,638
% of Pay	3.1%	3.4%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits earned by the actives and inactives. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	January 1, 2004	January 1, 2007
Actives		
Superannuations	$239,792,689	$324,164,448
Termination	(4,326,072)	(6,631,428)
Death	10,169,093	13,372,989
Disability	16,620,923	22,485,555
Retirees and Inactives		
Retirees and Beneficiaries	248,676,160	283,162,346
Vested	0	0
Terminated (Refund)	6,074,546	8,987,460
Disabled	35,766,211	47,226,955
Total	$552,773,550	$692,768,325

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference betwee the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	January 1, 2004	January 1, 2007
Actives		
Superannuation	$342,089,925	$461,423,866
Termination	22,353,586	26,141,168
Death	19,665,279	25,463,041
Disability	37,119,755	51,875,322
Retirees and Inactives		
Retirees and Beneficiaries	248,676,160	283,162,346
Vested	0	0
Terminated (Refund)	6,074,546	8,987,460
Disabled	35,766,211	47,226,955
Total	$711,745,462	$904,280,158

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	January 1, 2004	January 1, 2007
Cash equivalents	$5,959,468	$6,339,415
Short term investments	17,251,700	3,360,674
Fixed income securities	52,492,477	29,076,504
Equities	196,151,440	257,385,925
International	21,387,381	57,788,054
Real Estate	9,998,194	34,960,400
Venture Capital	0	0
Other	8,102,555	7,251,509
Accounts receivable	1,762,478	1,460,227
Accounts payable	(1,143,607)	(726,002)
Accrued income	524,721	274,457
Total Market Value	$312,486,807	$397,171,164
Total Actuarial Value	$350,879,900	$389,758,785

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Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8.5%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 10%. The calculation of the actuarial value of assets as of January 1, 2007 is presented in Table V.

Table V

		January 1, 2007
(1)	Market value at January 1, 2006	$354,370,413
(2)	2006 Contributions	$43,466,577
(3)	2006 Payments	($43,465,568)
(4)	Net interest adjustment at 8.5% on (1), (2), and (3) to December 31, 2006	$30,121,528
(5)	Expected market value on January 1, 2007 (1) + (2) + (3) + (4)	$384,492,950
(6)	Actual market value on January 1, 2006	$397,171,164
(7)	2006 (Gain) / Loss	($12,678,214)
(8)	80% of 2006 (Gain) / Loss	($10,142,571)
(9)	2005 (Gain) / Loss	$12,473,953
(10)	60% of 2005 (Gain) / Loss	$7,484,372
(11)	2004 (Gain) / Loss	($1,605,408)
(12)	40% of 2004 (Gain) / Loss	($642,163)
(13)	2003 (Gain) / Loss	($20,560,083)
(14)	20% of 2003 (Gain) / Loss	($4,112,017)
(15)	Actuarial value on January 1, 2007, (6) + (8) + (10) + (12) + (14) but not less than 90% nor greater than 110% of (6)	$389,758,785
	Ratio of actuarial value to market value	98.13%

Investment Returns	Actuarial Value	Market Value
2004	1.61%	9.02%
2005	3.34%	4.80%
2006	6.62%	12.08%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	January 1, 2004	January 1, 2007
Actuarial Accrued Liability	$552,773,550	$692,768,325
Actuarial Assets	350,879,900	389,758,785
Unfunded Actuarial Accrued Liability	$201,893,650	$303,009,540
Funded Status	63.5%	56.3%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the prior unfunded actuarial accrued liability by June 30, 2028
  $ 198,893,426 over 21 years with 4.5% increasing payments
- Level amortization of the 1992 Early Retirement Incentive by June 30, 2008
  $ 103,104 over 1 years
- Increasing amortization of the 2002 Early Retirement Incentive by June 30, 2028
  $ 12,866,823 over 21 years with 4.5% increasing payments
- Increasing amortization of the 2003 Early Retirement Incentive by June 30, 2028
  $ 2,522,704 over 21 years with 4.5% increasing payments
- Increasing amortization of the current (gains)/losses by June 30, 2028
  $ 88,623,484 over 21 years with 4.5% increasing payments
- Interest adjustment for payments deposited semiannually.

Due to the substantial increase in the appropriation, the Board with the approval of PERAC, adopted a funding schedule that will increase more than 4.5% per year until 2014. The pension appropriation is shown in Table VII.

Table VII

	January 1, 2004	January 1, 2007
Normal cost	$6,049,472	$7,234,638
Amortization payment of the unfunded accrued liability	14,372,586	19,426,834
Amortization payment of 1992 ERI liability	103,104	103,104
Amortization payment of 2002 ERI liability	869,381	869,381
Amortization payment of 2003 ERI liability	170,453	170,453
Total cost	$21,564,996	$27,804,410
% of Pay	12.6%	13.1%
Fiscal 2008 cost	$22,920,885	$22,920,884
Fiscal 2009 cost	$23,950,211	$26,400,000

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2028 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 18 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents 10.8% of payroll, increasing to 13.9% by 2014, and then decreasing to 12.2% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 1.3% thereafter.

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Appropriation Forecast - Smoothed to 2014

Fiscal Year Ending	Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2008	$211,518,755	$17,463,691	$7,689,512	$15,231,372	$22,920,884	10.8	56.3
2009	$221,037,099	$18,497,524	$7,771,983	$18,628,017	$26,400,000	11.9	58.3
2010	$230,983,768	$19,589,038	$7,846,304	$20,953,696	$28,800,000	12.5	60.3
2011	$241,378,038	$20,741,331	$7,911,576	$23,288,424	$31,200,000	12.9	62.3
2012	$252,240,050	$21,957,662	$7,966,834	$25,633,166	$33,600,000	13.3	64.3
2013	$263,590,852	$23,241,462	$8,011,044	$27,988,956	$36,000,000	13.7	66.4
2014	$275,452,440	$24,596,340	$8,043,100	$30,232,431	$38,275,531	13.9	68.4
2015	$287,847,800	$26,026,092	$8,061,819	$31,592,891	$39,654,710	13.8	70.4
2016	$300,800,951	$27,534,715	$8,065,935	$33,014,571	$41,080,506	13.7	72.5
2017	$314,336,994	$29,126,411	$8,054,097	$34,500,227	$42,554,324	13.5	74.5
2018	$328,482,159	$30,805,602	$8,024,859	$36,052,737	$44,077,596	13.4	76.5
2019	$343,263,856	$32,576,940	$7,976,681	$37,675,110	$45,651,791	13.3	78.6
2020	$358,710,729	$34,445,316	$7,907,916	$39,370,490	$47,278,406	13.2	80.6
2021	$374,852,712	$36,415,877	$7,816,809	$41,142,162	$48,958,971	13.1	82.7
2022	$391,721,084	$38,494,038	$7,701,490	$42,993,559	$50,695,049	12.9	84.8
2023	$409,348,533	$40,685,491	$7,559,963	$44,928,269	$52,488,232	12.8	86.9
2024	$427,769,217	$42,996,224	$7,390,102	$46,950,042	$54,340,144	12.7	89.0
2025	$447,018,832	$45,432,535	$7,189,646	$49,062,793	$56,252,439	12.6	91.1
2026	$467,134,679	$48,001,046	$6,956,183	$51,270,619	$58,226,802	12.5	93.3
2027	$488,155,740	$50,708,723	$6,687,150	$53,577,797	$60,264,947	12.3	95.5
2028	$510,122,748	$53,562,889	$6,379,817	$55,988,798	$62,368,615	12.2	97.7
2029	$533,078,272	$55,973,219	$6,666,909	$0	$6,666,909	1.3	100.0
2030	$557,066,794	$58,492,013	$6,966,920	$0	$6,966,920	1.3	100.0
2031	$582,134,800	$61,124,154	$7,280,431	$0	$7,280,431	1.3	100.0
2032	$608,330,866	$63,874,741	$7,608,050	$0	$7,608,050	1.3	100.0
2033	$635,705,754	$66,749,104	$7,950,413	$0	$7,950,413	1.3	100.0
2034	$664,312,513	$69,752,814	$8,308,181	$0	$8,308,181	1.3	100.0
2035	$694,206,577	$72,891,691	$8,682,049	$0	$8,682,049	1.3	100.0
2036	$725,445,872	$76,171,817	$9,072,742	$0	$9,072,742	1.3	100.0
2037	$758,090,937	$79,599,548	$9,481,015	$0	$9,481,015	1.3	100.0
2038	$792,205,029	$83,181,528	$9,907,661	$0	$9,907,661	1.3	100.0
2039	$827,854,255	$86,924,697	$10,353,505	$0	$10,353,505	1.3	100.0

* Calendar basis

** Beginning of Fiscal Year

GASB Statements No. 25 and No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to $0. The required disclosure information is shown in Table VIII.

Table VIII

		January 1, 2004	January 1, 2007
(1)	Actuarial Accrued Liability	$552,773,550	$692,768,325
(2)	Actuarial Value of Assets	350,879,900	389,758,785
(3)	Unfunded Actuarial Accrued Liability	201,893,650	303,009,540
(4)	Funded Ratio (2)/(1)	63.5%	56.3%
(5)	Covered Payroll	$170,669,442	$211,518,755
(6)	UAAL as a percentage of payroll: (3)/(5)	118.3%	143.3%
(7)	Annual Required Contribution (ARC)	$21,982,772	$22,920,884
(8)	Net Pension Obligation	$0	$0

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PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Buck Consultants as of January 1, 2007.

The normal cost for employees on that date was:	$17,463,691	8.3% of pay
The normal cost for the employer was:	7,234,638	3.4% of pay

The actuarial liability for active members was:	$353,391,564
The actuarial liability for retired members was:	339,376,761
Total actuarial accrued liability:	692,768,325
System assets as of that date:	389,758,785
Unfunded actuarial accrued liability:	$303,009,540

The ratio of system's assets to total actuarial liability was	56.3%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.5%
Rate of Salary Increase:	4.8%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded Actuarial Accrued Liability (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a percent of Covered Payroll (b-a)/c
01/01/07	$389,758,785	$692,768,325	$303,009,540	56.3%	$211,518,755	143.3%
01/01/04	$350,879,900	$552,773,549	$201,893,649	63.5%	$170,669,442	118.0%
01/01/01	$316,389,108	$426,280,953	$109,891,845	74.2%	$145,000,347	76.0%
01/01/99	$248,967,040	$374,455,997	$125,488,957	66.5%	$119,857,640	105.0%
01/01/98	$240,982,371	$394,330,873	$153,348,502	61.1%	$134,803,954	114.0%
01/01/97	$174,065,213	$291,956,757	$117,891,544	59.6%	$111,270,545	106.0%

Attach Copy of Current Approved Funding Schedule

EXHIBITS

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Age/Service Distribution with Salary as of January 1, 2007

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	3	0	0	0	0	0	0	0	0	3
	25,173	0	0	0	0	0	0	0	0	25,173
20-24	140	0	0	0	0	0	0	0	0	140
	22,368	0	0	0	0	0	0	0	0	22,368
25-29	395	49	0	0	0	0	0	0	0	444
	24,457	34,723	0	0	0	0	0	0	0	25,590
30-34	257	141	22	1	0	0	0	0	0	421
	27,946	40,289	49,657	33,891	0	0	0	0	0	33,228
35-39	324	184	107	28	2	0	0	0	0	645
	26,626	38,477	49,025	52,440	40,157	0	0	0	0	34,885
40-44	427	281	103	88	38	0	0	0	0	937
	21,689	30,940	40,040	55,558	48,672	0	0	0	0	30,756
45-49	513	351	166	74	74	33	0	0	0	1,211
	23,668	26,679	35,154	46,084	50,807	53,488	0	0	0	29,956
50-54	384	337	219	105	81	74	16	0	0	1,216
	24,514	26,128	32,403	36,651	47,959	57,185	53,280	0	0	31,359
55-59	197	173	152	156	112	37	34	22	3	886
	25,503	28,473	28,848	35,780	37,992	49,159	58,919	58,321	30,759	33,148
60-64	107	91	64	70	62	40	23	12	5	474
	24,537	26,750	33,294	34,168	36,194	39,463	48,073	53,756	59,377	32,600
65-69	30	34	37	26	23	14	12	2	1	179
	19,727	26,503	27,314	31,180	36,542	26,749	28,378	6,431	66,010	27,645
70+	6	8	6	4	7	7	7	4	5	54
	23,199	17,459	21,395	12,261	34,433	27,319	24,119	32,171	23,306	24,122
Total Employees	2,783	1,649	876	552	399	205	92	40	14	6,610
Average Salary	24,389	30,155	35,444	40,730	42,995	48,585	48,595	51,742	40,836	31,068

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Retiree Distribution as of January 1, 2007

	Number of Employees			Total Payments		
Attained Age	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	1	0	1	6,571	0	6,571
35-39	3	1	4	39,983	31,504	71,487
40-44	3	0	3	42,106	0	42,106
45-49	6	1	7	78,715	3,883	82,599
50-54	20	11	31	361,381	173,381	534,762
55-59	89	79	168	2,589,883	732,330	3,322,213
60-64	135	193	328	3,531,356	2,169,320	5,700,676
65-69	174	243	417	3,559,866	2,997,751	6,557,617
70-74	171	241	412	2,684,130	2,588,363	5,272,494
75-79	187	254	441	2,617,723	2,239,827	4,857,549
80-84	178	280	458	1,843,904	1,851,549	3,695,453
85-89	111	174	285	976,107	1,035,935	2,012,041
90-94	41	56	97	234,112	339,325	573,437
95-99	23	11	34	111,923	66,814	178,737
Total	1,142	1,544	2,686	18,677,758	14,229,982	32,907,741
Average (Age/Payment)	73.8	74.7	74.3	16,355	9,216	12,252
Frequency Percent	42.5	57.5	100.0	56.8	43.2	100.0

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Disabled Retiree Distribution as of January 1, 2007

	Number of Employees			Total Payments		
Attained Age	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	1	0	1	35,273	0	35,273
35-39	4	0	4	127,038	0	127,038
40-44	7	2	9	222,479	80,710	303,189
45-49	12	4	16	301,858	65,156	367,014
50-54	23	5	28	577,548	67,565	645,114
55-59	25	2	27	646,189	9,552	655,741
60-64	31	2	33	831,301	51,562	882,864
65-69	18	3	21	398,229	45,371	443,600
70-74	22	6	28	447,108	113,700	560,807
75-79	16	2	18	311,359	26,655	338,014
80-84	6	2	8	105,821	15,303	121,124
85-89	5	1	6	68,058	15,945	84,003
90-94	1	0	1	13,436	0	13,436
95-99	0	1	1	0	4,703	4,703
Total	171	30	201	4,085,698	496,222	4,581,921
Average (Age/Payment)	62.6	64.4	62.9	23,893	16,541	22,796
Frequency Percent	85.1	14.9	100.0	89.2	10.8	100.0

P:\Actrl\10162\2007\[WorcesterReg07_V4_Final.xls]Cash Flow

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2007	$42,184,407	$17,463,691	$22,920,884	$40,104,532	$38,304,701
2008	44,182,703	18,497,524	26,400,000	40,857,601	41,572,422
2009	46,288,475	19,589,038	28,800,000	43,116,487	45,217,050
2010	48,588,051	20,741,331	31,200,000	45,720,017	49,073,297
2011	51,170,591	21,957,662	33,600,000	48,683,874	53,070,945
2012	54,124,556	23,241,462	36,000,000	52,017,840	57,134,746
2013	57,076,652	24,596,340	38,275,531	55,869,036	61,664,255
2014	60,297,166	26,026,092	39,654,710	61,039,205	66,422,841
2015	63,665,999	27,534,715	41,080,506	66,611,418	71,560,640
2016	67,163,732	29,126,411	42,554,324	72,618,926	77,135,928
2017	70,992,775	30,805,602	44,077,596	79,090,709	82,981,132
2018	75,136,523	32,576,940	45,651,791	86,050,634	89,142,842
2019	79,338,201	34,445,316	47,278,406	93,536,539	95,922,060
2020	83,882,764	36,415,877	48,958,971	101,589,307	103,081,391
2021	88,389,286	38,494,038	50,695,049	110,257,379	111,057,180
2022	92,870,919	40,685,491	52,488,232	119,609,891	119,912,696
2023	97,471,632	42,996,224	54,340,144	129,715,931	129,580,667
2024	101,914,971	45,432,535	56,252,439	140,656,382	140,426,385
2025	106,157,153	48,001,046	58,226,802	152,533,513	152,604,208
2026	110,282,116	50,708,723	60,264,947	165,457,408	166,148,962
2027	114,340,657	53,562,889	62,368,615	179,542,515	181,133,362
2028	118,428,132	55,973,219	6,666,909	197,413,000	141,624,996
2029	122,005,531	58,492,013	6,966,920	209,522,529	152,975,931
2030	125,304,730	61,124,154	7,280,431	222,618,385	165,718,240
2031	128,131,466	63,874,741	7,608,050	236,827,369	180,178,694
2032	130,509,053	66,749,104	7,950,413	252,295,018	196,485,482
2033	132,521,819	69,752,814	8,308,181	269,175,249	214,714,425
2034	134,040,080	72,891,691	8,682,049	287,637,352	235,171,012
2035	134,810,445	76,171,817	9,072,742	307,881,758	258,315,872
2036	139,335,173	79,599,548	9,481,015	329,950,084	279,695,475

amounts in thousands

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2007, and does not take into account any subsequent changes.

1. Administration

Each of the 107 contributory retirement systems for public employees of the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

(i) Group 1: Most general employees in State and local government

(ii) Group 2: Certain specified hazardous duty positions

(iii) Group 3: State police officers and inspectors

(iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

3. Salary

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. Member Contributions

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of $30,000

5. Average Salary

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

6. Creditable Service

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. Service Retirement

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

(i) completion of 20 years of service

(ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member

(iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

Age at Retirement	Percentage of Average Salary Group 1	Group 2	Group 4
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus $648.48 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. <u>Ordinary Disability</u>

a. <u>Eligibility</u>:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

b. <u>Benefit Amount</u>:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

11. <u>Survivor Benefits</u>

a. <u>Occupational Death</u>:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. <u>Non-Occupational Death</u>:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of $250 per month to the surviving spouse, plus $120 for the first child, plus $90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of $250 per month plus $120 for the first child and $90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is $12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

(i) Option A – Life annuity

(ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member

(iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

January 1, 2007.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.5% per annum.

5. Salary Scale

The assumed annual rates for salary increases including longevity are illustrated by the following rates:

Year	Rate
2007	3.00%
2008	4.00%
2009	4.00%
2010	4.00%
2011	4.00%
2012+	4.75%

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and $12,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value is based on a 5 year smoothing of realized and unrealized investment earnings greater than or less than the expected return. The result must be within 10% of market value.

8. Annual Rate of Withdrawal Prior to Retirement

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

Service	General Employees	Police and Fire Employees
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. Annual Rate of Mortality

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 Mortality Table for males and females. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

11. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

Attained Age	General Employees	Police and Fire Employees
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

12. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

13. Administrative Expenses

No provision made for future expenses.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. Actuarial Present Value

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. Forecast

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the Worcester Regional Retirement System contributing as of January 1, 2007, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Buck Consultants, LLC

Daniel W. Sherman

Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 05-4086

November 2007